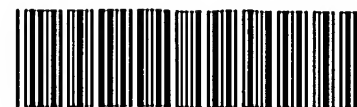# RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: _10/539, 891_

Source: _PCT._

Date Processed by STIC: _06-29-2005_

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   4         Sayanova, Olga
   5         Lazarus, Colin M.
   6         Qi, Baoxiu
   7         Heinz, Ernst
   8         Zank, Thorsten
   9         Zahringer, Ulrich
  11 <120> TITLE OF INVENTION: Novel method for the production of polyunsaturated fatty
acids
  13 <130> FILE REFERENCE: 13478-00001-US
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C--> 15 <141> CURRENT FILING DATE: 2005-06-17
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  16 <151> PRIOR FILING DATE: 2003-12-11
  18 <150> PRIOR APPLICATION NUMBER: GB 0229578.0
  19 <151> PRIOR FILING DATE: 2002-12-19
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  22 <151> PRIOR FILING DATE: 2003-07-21
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  45               20                  25                  30
  47 ata gag aat tac caa gga agg gat gcc act gat gcc ttc atg gtt atg   144
  48 Ile Glu Asn Tyr Gln Gly Arg Asp Ala Thr Asp Ala Phe Met Val Met
  49           35                  40                  45
  51 cac tct caa gaa gcc ttc gac aag ctc aag cgc atg ccc aaa atc aat   192
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  53       50                  55                  60
  55 ccc agt tct gag ttg cca ccc cag gct gca gtg aat gaa gct caa gag   240
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(pg-6)

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64  Ala Ser Pro Leu Trp Tyr Ser Tyr Lys Ile Ser Thr Thr Leu Gly Leu
65              100                 105                 110
67  gga gtg ctg ggt tat ttc ctg atg gtt cag tat cag atg tat ttc att    384
68  Gly Val Leu Gly Tyr Phe Leu Met Val Gln Tyr Gln Met Tyr Phe Ile
69              115                 120                 125
71  ggg gca gtg ttg ctt ggg atg cac tat caa cag atg ggc tgg ctt tct    432
72  Gly Ala Val Leu Leu Gly Met His Tyr Gln Gln Met Gly Trp Leu Ser
73          130                 135                 140
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76  His Asp Ile Cys His His Gln Thr Phe Lys Asn Arg Asn Trp Asn Asn
77  145                 150                 155                 160
79  ctc gtg gga ctg gta ttt ggc aat ggt ctg caa ggt ttt tcc gtg aca    528
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81              165                 170                 175
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85              180                 185                 190
87  ggg cac gac cct gat att gac aac ctc ccc ctc tta gcc tgg tct gag    624
88  Gly His Asp Pro Asp Ile Asp Asn Leu Pro Leu Leu Ala Trp Ser Glu
89              195                 200                 205
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99  tgt ttc cag agc gtg ttg acc gtg cgc agt ctg aag gac aga gat aac    768
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116 Gly Ile Ala Ile Val Val Phe Met Asn His Tyr Pro Leu Glu Lys Ile
117 305                 310                 315                 320
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120 Gly Asp Ser Val Trp Asp Gly His Gly Phe Ser Val Gly Gln Ile His
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131 cac aac ctg aca gcg gtt agc tac cag gtg gaa cag ctg tgc cag aag   1152
132 His Asn Leu Thr Ala Val Ser Tyr Gln Val Glu Gln Leu Cys Gln Lys
133         370                 375                 380
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136 His Asn Leu Pro Tyr Arg Asn Pro Leu Pro His Glu Gly Leu Val Ile
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140 Leu Leu Arg Tyr Leu Ala Val Phe Ala Arg Met Ala Glu Lys Gln Pro
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166 Pro Ser Ser Glu Leu Pro Pro Gln Ala Ala Val Asn Glu Ala Gln Glu
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170             85                  90                  95
172 Ala Ser Pro Leu Trp Tyr Ser Tyr Lys Ile Ser Thr Thr Leu Gly Leu
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175 Gly Val Leu Gly Tyr Phe Leu Met Val Gln Tyr Gln Met Tyr Phe Ile
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178 Gly Ala Val Leu Leu Gly Met His Tyr Gln Gln Met Gly Trp Leu Ser
179         130                 135                 140
181 His Asp Ile Cys His His Gln Thr Phe Lys Asn Arg Asn Trp Asn Asn
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184 Leu Val Gly Leu Val Phe Gly Asn Gly Leu Gln Gly Phe Ser Val Thr
185             165                 170                 175
187 Cys Trp Lys Asp Arg His Asn Ala His His Ser Ala Thr Asn Val Gln
188             180                 185                 190
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202 Gln Phe Tyr Arg Ser Gln Tyr Lys Lys Glu Ala Ile Gly Leu Ala Leu
203                   260                   265                   270
205 His Trp Thr Leu Lys Ala Leu Phe His Leu Phe Phe Met Pro Ser Ile
206            275                   280                   285
208 Leu Thr Ser Leu Leu Val Phe Phe Val Ser Glu Leu Val Gly Gly Phe
209            290                   295                   300
211 Gly Ile Ala Ile Val Val Phe Met Asn His Tyr Pro Leu Glu Lys Ile
212 305                   310                   315                   320
214 Gly Asp Ser Val Trp Asp Gly His Gly Phe Ser Val Gly Gln Ile His
215                   325                   330                   335
217 Glu Thr Met Asn Ile Arg Arg Gly Ile Ile Thr Asp Trp Phe Phe Gly
218            340                   345                   350
220 Gly Leu Asn Tyr Gln Ile Glu His His Leu Trp Pro Thr Leu Pro Arg
221            355                   360                   365
223 His Asn Leu Thr Ala Val Ser Tyr Gln Val Glu Gln Leu Cys Gln Lys
224      370                   375                   380
226 His Asn Leu Pro Tyr Arg Asn Pro Leu Pro His Glu Gly Leu Val Ile
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244 <223> OTHER INFORMATION: delta-9-elongase
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252 Asp Pro Glu Ile Leu Ile Gly Thr Phe Ser Tyr Leu Leu Leu Lys Pro
253            20                   25                   30
255 ctg ctc cgc aat tcc ggg ctg gtg gat gag aag aag ggc gca tac agg  144
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257            35                   40                   45
259 acg tcc atg atc tgg tac aac gtt ctg ctg gcg ctc ttc tct gcg ctg  192
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263 agc ttc tac gtg acg gcg acc gcc ctc ggc tgg gac tat ggt acg ggc  240
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265 65                  70                  75                  80
267 gcg tgg ctg cgc agg caa acc ggc gac aca ccg cag ccg ctc ttc cag    288
268 Ala Trp Leu Arg Arg Gln Thr Gly Asp Thr Pro Gln Pro Leu Phe Gln
269                 85                  90                  95
271 tgc ccg tcc ccg gtt tgg gac tcg aag ctc ttc aca tgg acc gcc aag    336
272 Cys Pro Ser Pro Val Trp Asp Ser Lys Leu Phe Thr Trp Thr Ala Lys
273             100                 105                 110
275 gca ttc tat tac tcc aag tac gtg gag tac ctc gac acg gcc tgg ctg    384
276 Ala Phe Tyr Tyr Ser Lys Tyr Val Glu Tyr Leu Asp Thr Ala Trp Leu
277         115                 120                 125
279 agg gtc tcc ttt ctc cag gcc ttc cac cac ttt ggc gcg ccg tgg gat    432
280 Arg Val Ser Phe Leu Gln Ala Phe His His Phe Gly Ala Pro Trp Asp
281     130                 135                 140
283 gtg tac ctc ggc att cgg ctg cac aac gag ggc gta tgg atc ttc atg    480
284 Val Tyr Leu Gly Ile Arg Leu His Asn Glu Gly Val Trp Ile Phe Met
285 145                 150                 155                 160
287 ttt ttc aac tcg ttc att cac acc atc atg tac acc tac tac ggc ctc    528
288 Phe Phe Asn Ser Phe Ile His Thr Ile Met Tyr Thr Tyr Tyr Gly Leu
289                 165                 170                 175
291 acc gcc gcc ggg tat aag ttc aag gcc aag ccg ctc atc acc gcg atg    576
292 Thr Ala Ala Gly Tyr Lys Phe Lys Ala Lys Pro Leu Ile Thr Ala Met
293             180                 185                 190
295 cag atc tgc cag ttc gtg ggc ggc ttc ctg ttg gtc tgg gac tac atc    624
296 Gln Ile Cys Gln Phe Val Gly Gly Phe Leu Leu Val Trp Asp Tyr Ile
297         195                 200                 205
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300 Asn Val Pro Cys Phe Asn Ser Asp Lys Gly Lys Leu Phe Ser Trp Ala
301     210                 215                 220
303 ttc aac tat gca tac gtc ggc tcg gtc ttc ttg ctc ttc tgc cac ttt    720
304 Phe Asn Tyr Ala Tyr Val Gly Ser Val Phe Leu Leu Phe Cys His Phe
305 225                 230                 235                 240
307 ttc tac cag gac aac ttg gca acg aag aaa tcg gcc aag gcg ggc aag    768
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316 <211> LENGTH: 258
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325             20                  25                  30
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328         35                  40                  45
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PATENT APPLICATION: US/10/539,891   TIME: 14:01:52

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Output Set: N:\CRF4\06292005\J539891.raw

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

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Invalid Line Length:
The rules require that a line not exceed 72 characters in length. This includes spaces.

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        PATENT APPLICATION:   US/10/539,891      TIME: 14:01:52

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VERIFICATION SUMMARY   DATE: 06/29/2005
PATENT APPLICATION: US/10/539,891   TIME: 14:01:52

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Output Set: **N:\CRF4\06292005\J539891.raw**

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L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date
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M:341 Repeated in SeqNo=9
L:995 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:96
M:341 Repeated in SeqNo=10